Rule WLM017: Server and subsystem transactions in same service class

Finding: The policy being evaluated contained a service class into which the workload classification scheme had placed both a server (e.g., a CICS region) and the transactions being served by the server (e.g., the CICS transactions).

Impact: This finding should be viewed as generally having a LOW IMPACT on the performance of the workload involved. This finding may have a HIGH IMPACT during address space start-up or shutdown.

This finding is not applicable if APAR OW45239 is installed, or with z/OS V1R1 and subsequent releases of z/OS.

Logic flow: This a basic finding. There are no predecessor rules.

Discussion: If subsystems are installed which support Workload Manager reporting (e.g., CICS/ESA Version 4.1 or IMS/ESA Version 5), installations can define service classes which describe particular transaction types and specify performance goals for the transactions in the service class. All transactions entering the system which fall into the workload category described by the service class are associated with the service class.

Please refer to Rule WLM016 for discussion of the relationship between server service classes and transaction service classes.

Of particular importance to this finding is the fact that the Workload Manager **uses the performance goal for the server service class** during address space start-up (and may use it during address space shutdown). The actual value specified for the goal **is important** during these intervals. You may experience serious performance problems during start-up of a CICS region (and potentially during region shutdown) if an inappropriate goal is specified for the server service class.

The server service class consists of address spaces, while the subsystem transaction service classes consists of transactions. The address spaces do not have response goals, since an address space "transaction" ends (from the view of the SRM) only when the address space ends. On the other hand, the subsystem transactions do have response goals. Further, since the transaction service classes are simply logical groupings of transactions and not address spaces, the transaction service classes do not

have resource use associated with them (the transactions do not use resources; the address spaces use resources).

It is illogical to specify the same performance goal for a server and the transactions it serves; the server goal should relate to resources and the transaction goal should relate to response time. Consequently, you should not group transactions into the same service class as the address spaces serving the transactions.

With OS/390 V2R10, IBM introduced an "exemption from transaction response time management" option. This option is available with APAR OW43812 installed. With the APAR applied, organizations can specify whether an address space (CICS region or IMS region) will be managed based on the goals of the transactions that the region is serving, or managed based on the goals specified for the region itself. This option is exercised by using the new "Manage Region Using Goals Of:" field on the WLM ISPF "Modify Rules for the Subsystem Type" panel.

When "TRANSACTION" is entered in the "Manage Region Using Goals OF:" field, the region will be managed as a CICS/IMS transaction server by the WLM. "TRANSACTION" is the default specification. If "REGION" is entered in this field, the region will be managed based on the performance goal specified for the service class to which the region is assigned. This performance goal normally would be an execution velocity goal.

When "REGION" is specified, the WLM does not consider the region to be a "server" of transactions. Rather, the WLM server topology algorithms ignore the region when establishing server topology. Consequently, the goals for any transaction processed by the region will not be considered by the WLM when it determines whether service class periods meet goals and whether policy adjustment is necessary.

This consequence might have undesired implications if you specify goals for CICS or IMS transactions and some or all of those transactions are processed by a CICS or IMS region that has "REGION" specified in the "Manage Region Using Goals Of:" field. In this case, **performance of the transaction service class will not be considered when adjusting resource policy for the region**. This could have the undesired result of transactions not achieving the performance that you desire, simply because the transactions were processed by a CICS or IMS region that was managed based on the goals specified for the region. Alternatively, some transactions might receive better performance than desired because of the same "region-oriented" management by the WLM.

CPExpert produces Rule WLM017 when a service class has been identified as a server, and the SMF record contains Work Manager/Resource Manager State data.

The following example illustrates the output from Rule WLM017:

```
RULE WLM017:  SERVER AND TRANSACTIONS ARE IN SAME SERVICE CLASS

   CPExpert noticed that the CICSDEFA Service Class was defined to
include
   both an address space providing service (e.g., a CICS region) and the
   subsystem transactions being served by the address space.  CPExpert
   suggests that you place the server address space(s) and the subsystem
   transactions being served into different service classes.
```

Suggestion: CPExpert suggests that you change your workload classification scheme to place server address spaces into a different service class than the subsystem transactions being served.

- An appropriate execution velocity goal (greater than 30) should be defined for the **server** service class.

- An appropriate response goal should be defined for the **transaction** service class(es).

Alternatively, if you are running OS/390 Version 2 Release 10 (with APAR OW43812 installed) you might have deliberately assigned the “served” transaction service class to the region, and specified that the region be managed based on the goals specified for the region (normally, this would be an execution velocity goal). If this is the situation, you should consider the following alternatives:

C You can simply ignore this finding, but allow CPExpert to continue to check for such situations. The reason that you might wish to allow CPExpert continue to invoke Rule WLM017 is that your workload classification might change, new transactions might be added, CICS or IMS might route transactions to the CICS region or message processing region, etc. You might not be aware of the implications of the WLM assigning a specific transaction to a region managed by the region’s goal.

C You can “turn off” Rule WLM017 as described in Section 2 of this WLM Component User Manual. This action should be taken if you become

annoyed by Rule WLM017 being produced when you do not plan to take action.

Reference: MVS Planning: Workload Management

MVS/ESA(SP 5):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R1):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R2):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R3):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R4):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R5):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R6):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R7):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R8):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R9):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R10):	Chapter 8: Defining Service Classes and Performance Goals

Not applicable beginning with z/OS (V1R1)

"Migrating to the MVS Workload Manager", Peter Enrico (IBM Corporation Workload Manager developer), 1995 SHARE Winter Meeting

